**TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL**

NASA/GODDARD SPACE FLIGHT CENTER

# REQUEST FOR TASK PLAN / TASK ORDER

| CONTRACTOR | CONTRACT NO./TASK NO. | JOB ORDER NUMBER | APPROP. FY |
|---|---|---|---|
| QSS Group, Inc. | NAS5- 99124 TASK NO. 405 AMENDMENT | 564-740-50-14-89 | 01 |

**TASK TITLE:** (NTE 80 characters; include Project name)

SWIFT/BAT Detector Electronics Assembly

**APPROVALS:** (type or print name and sign)

| | DATE | ORG CODE | MAIL CODE | PHONE |
|---|---|---|---|---|
| ASSISTANT TECHNICAL REPRESENTATIVE (OR TASK MONITOR)<br>Irving Linares | 10/17/00 | 564 | 663 | 301-286-7687 |
| BRANCH HEAD<br>Cornelis A. Gehrels | 10/17/00 | 661 | | 301-286-6546 |
| CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR)<br>Robert S. Lebair, Jr. | 10/18/00 | 560 | | 301-286-6588 |

| FLIGHT HARDWARE, CRITICAL GSE OR SOFTWARE? (IF YES, NEED CODE 303 CONCURRENCE NEXT BLOCK) | CONTRACTING OFFICER'S QUALITY REP. | DESIGNATED FAM: |
|---|---|---|
| ( ) NO (X) YES | Larry Moore | Ronald E. Kolecki |

**The contractor shall identify and explain the reason for any deviations, exceptions, or conditional assumptions taken with respect to this Task Order or to any of the technical requirements of the Task Order Statement of Work and related specifications. The contractor shall complete and submit the required Reps and Certs.**

*(To be completed by Contracting Officer)*

**C.O. Requested Quote on:**

***Date:*** OCT 19 2000

| | | | | |
|---|---|---|---|---|
| Contractor will develop specification or statement of work under this task for a future pro | (X) NO | ( ) YES | | |
| Flight hardware will be shipped to GSFC for testing prior to final de | ( ) NO | (X) YES | ( ) N/A | |
| Government Furnished Property/Faciliti | ( ) NO | (X) YES -- SEE LIST OF GFP (offsite only) / FACILITIES (onsite only) | | |
| Onsite Performance: | ( ) NO | (X) YES | If yes: ( ) TOTAL | (X) PARTIAL |
| | | | If partial, indicate onsite work in SOW by asterisk (*) | |
| Surveillance Plan Attached: | (X) NO | ( ) YES | | |

Highlighted Contract Clauses: *(to be completed by Contracting Officer)*

**INCENTIVE FEE STRUCTURE** (check one)

(See Contract NAS5-99124, Attachment K, Incentive Fee Plan)

| | ___ No. 1 | ___ No. 2 | _X_ No. 3 | ___ No. 4 | ___ No. 5 |
|---|---|---|---|---|---|
| Cost | 10% | 50% | 25% | 25% | % |
| Schedule | 15% | 25% | 25% | 50% | % |
| Technical | 75% | 25% | 50% | 25% | % |

*(To be completed by Contracting Officer)*

The target cost of this task order is $_____.

The target fee of this task order is $_____.

The total target cost and target fee of this task order as contemplated by the Incentive Fee clause of this contract is $_____.

The maximum fee is $_____.

The minimum fee is $0.

**AUTHORIZED SIGNATURE:**

*THIS TASK ASSIGNMENT IS ISSUED ACCORDING TO THE CONTRACT CLAUSE "TASK ASSIGNMENTS AND REPORTS"*

SIGNATURE OF CONTRACTING OFFICER | DATE | TYPED NAME OF CONTRACTING OFFICER

**CONTRACTOR'S ACCEPTANCE:**

AUTHORIZED SIGNATURE | DATE

GSFC FORM 703-1845 12/98 (OLDER VERSIONS ARE OBSOLETE)

DISTRIBUTION: CONTRACTOR, CONTRACTING OFFICER, COTR, CODE 303, RESOURCES ANALYST, ASSISTANT TECHNICAL REPRESENTATIVE

**TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL**

NASA/GODDARD SPACE FLIGHT CENTER

# REQUEST FOR TASK PLAN / TASK ORDER

| CONTRACTOR | CONTRACT NO./TASK NO. | | |
|---|---|---|---|
| | NAS5- | TASK NO. | AMENDMENT |
| QSS Group, Inc. | 99124 | 405 | |

Applicable paragraphs from contract Statement of Work: Function II, Paragraphs D5, and E

**STATEMENT OF WORK:** (Continue on blank paper if additional space is required)

See Page 3.

**PERFORMANCE SPECIFICATIONS:**

1. Perform Printed Wiring Board design/layout, fabrication, and assembly documentation using THEDA PCB Software, Version 2.1 (or later), Mentor PCB S/W Version C.4 (or later) or PADS Power PCB Software, Version 2.0 (or later), or equivalent.

2. Perform Enclosure, and related hardware, fabrication and assembly documentation using Autocad 14 (or later) format, or equivalent.

3. Perform Electrical design using Viewlogic/simulations and Model Tech/Design Synthesis, or equivalent.

4. Weekly Meetings with the Task Monitor and all other relevant GSFC and subcontractor personnel a minimum of twice per month. This meeting shall cover the status of all ongoing activities related to the task including schedule, cost and potential or unresolved problem areas.

4. Reports and Documents: Technical performance will be based on thoroughness and completeness of written reports. Acceptable performance is that the ATR is satisfied that the material reflects the proper level of technical expertise and meets the objectives of the activity. Reports shall be delivered to the ATR both as a hard copy and in MS Word format via either diskette or email.

5. Technical Progress Report: Acceptable performance is that the ATR is satisfied that he is being kept informed of the status of work performed and of issues requiring his attention.

6. Management: Performance will be measured against the following metrics: (1) accomplishment of objectives; (2) clear, incremental progress; (3) responsiveness to issues; (4) efficient and appropriate staffing; and (5) coordination with and good working relationship with ATR and other related contractor efforts, if applicable.

**APPLICABLE DOCUMENTS:**

See section 1.4.0 of SOW (Applicable Documents) for list of applicable documents.

**TASK END DATE:** 7/31/01

**MILESTONES/DELIVERABLES AND DATES:**

See section 1.9.0 (Deliverables Schedule), and Attachment A (Hardware Deliverables List), of SOW for list of deliverable dates and quantities.

Meetings with Task Monitor and all other relevant GSFC and subcontractor personnel: minimum of twice per month.
Technical Progress Report: monthly, 15th of the month

**PERFORMANCE STANDARDS:**

**Schedule:** On-time delivery/completion of deliverables/milestones
**Technical:** ATR's acceptance of the above

**FINAL DELIVERY DESTINATION (NAME, BLDG, ROOM):**
Scott D. Barthelmy, building 2, room 241

**TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL**

NASA/GODDARD SPACE FLIGHT CENTER

# REQUEST FOR TASK PLAN / TASK ORDER

**Contract NAS5-99124**

**Task #: 405**

October 17, 2000

## SWIFT BURST ALERT TELESCOPE DETECTOR ELECTRONICS ASSEMBLY STATEMENT OF WORK

### 1.0 SCOPE.

The purpose of this task is to produce the SWIFT Burst Alert Telescope (BAT) Detector Module (DM), the Block Command and Data Handler (BCDH), and the Box/Block Interconnect Cable (FB/BIC) Engineering Test Unit (ETU) and Flight Unit (FU) assemblies. The DM consists of the CTZ Detector PWA, the XA1 ASIC PWA, the Analog PWA, the Mixed-signal PWA, and the Digital PWA. Three (3) XA1 ASIC wire bond test boards will also be produced. To complete this task the contractor shall provide the skills, facilities, materials and services necessary to design, fabricate, assemble and deliver these units.

### 1.1.0 REQUIREMENTS

#### 1.1.1 Design

Electrical The BAT Detector Module and Block Electronics electrical designs will be provided to the contractor by the GSFC.

Mechanical The contractor shall provide mechanical packaging design for the DM test boards. The contractor shall provide board level mechanical and thermal design and analysis, and board-to-box level mechanical and thermal design and analysis for the Detector Module, BCDH, and FB/BIC FU Printed Wiring Assemblies (PWA). Contractor mechanical hardware design shall include heat sinks, connector brackets and mounting hardware. The GSFC will perform box level packaging design.

The Detector Module, BCDH, and FB/BIC, ETU and FU electronics hardware development will require close coordination and review between the GSFC Lead Engineers and the contractors representatives and designers in order to meet electrical, EMI, radiation, mechanical and thermal requirements, and ensure successful overall design and assembly.

### 1.2.0 MANUFACTURING

The contractor shall provide the required skills and materials (less the GFE specified in section 1.7.0) required to completely fabricate and assemble the ETU and FU electronics equipment described in section 1.1.0. This equipment shall be fabricated in accordance with the requirements of sections 1.4.0 and 1.6.0 of this SOW. Conformal coating and staking shall be applied to the flight electronics equipment, after engineering test, in accordance with the project schedule. The

assembly process will require direct die attachment, wire bonding, and automated component placement and soldering.

### 1.2.1 Quantities

See Attachment A (Hardware Deliverables List) of this SOW for a detailed list of hardware types and quantities.

### 1.3.0 TESTING

### 1.3.1 Mechanical Testing

The GSFC will perform mechanical testing.

### 1.3.2 Electrical Testing

The GSFC will perform electrical testing.

### 1.3.3 Environmental Testing

The GSFC will perform environmental testing.

### 1.4.0 APPLICABLE DOCUMENTS (Partial List)

1.4.1 GSFC Engineering "Drawing Standards Manual," Doc. No. X673-64-1E
1.4.2 Applicable GSFC Approved Contractors Procedures.
1.4.3 GFE schematics, net lists, and parts specification lists.
1.4.4 NASA-STD-8739.3 and NAS5300.4 series documents for the fabrication, assembly, wiring, and coating of flight electronics hardware.
1.4.5 Wire bond in accordance with MIL-STD-883, method 2017.
1.4.6 GSFC Quality Manual, GPG 8730.3.

### 1.5.0 STATUS REPORTING REQUIREMENTS

The contractor is required to conduct meetings with the task Technical Monitor and all other relevant GSFC and subcontractor personnel a minimum of twice per month. This meeting shall cover the status of all ongoing activities related to the task including schedule, cost and potential or unresolved problem areas.

**Contract NAS5-99124**

**Task #: 405**

## 1.6.0 QUALITY REQUIREMENTS

### 1.6.1 QA Requirements for flight hardware

The contractor shall work in accordance with SWIFT Programs Mission Assurance Requirements document GSFC-SWIFT-410-SPEC-002 dated March 1, 2000, and flow down to subcontractor.

All in process inspections are delegated to the subcontractor.

DCMC delegated to subcontractor. SAM will determine DCMC and subcontractor mandatory inspections steps.

The contractor shall perform final board level inspection post board soldering.
The contractor shall perform final board level inspection post conformal coating.
The contractor shall perform final board level data package review.

### 1.6.2 QA Requirements for non-flight hardware

Government source inspection is not required for non-flight hardware. The contractor shall perform Quality Assurance workmanship inspections of all non-flight hardware according to best commercial practice.

## 1.7.0 GOVERNMENT FURNISHED EQUIPMENT (GFE)

1.7.1 Finalized and signed-off circuit board schematics and net lists.

1.7.2 Applicable documents as requested.

1.7.3 All EEE Parts. The GSFC will provide Parts Lists of all parts to be provided.

1.7.4 Detector Module and BCDH housings, and FB/BIC hardware.

1.7.5 Detector Module, BCDH, and FB/BIC Printed Wiring Boards (PWA).

**Contract NAS5-99124**

**Task #: 405**

## 1.8.0 DELIVERABLES

### 1.8.1 Design and Manufacturing Documentation

A complete design package shall be delivered. The package shall consist of the following:

1. Electronic copy of final assembly and piece part fabrication drawings.
2. One hard copy of final assembly and piece part drawings.
   Note: Additional copies of drawings may be required, as needed, during the development of
   the packaging design.
3. All original fabrication and assembly drawings.
4. PDR or comparable Presentation Package.
5. CDR or comparable Presentation Package.
6. Final Structural/Fracture and Thermal reports documenting all analyses conducted and the results.
7. Materials and Processes List (contractor proposed materials) for PDR.
8. Final, complete Materials List (including GFE and GFP) for CDR.
9. Final End Item Acceptance Data Package including the as-built Configuration List, the as-built Materials and Processes List, the WOA and/or Certification Logs and a list of any open items.
10. Performance Assurance documentation as required.

### 1.8.2 Hardware

The contractor shall deliver one (1) set of Detector wire bond process evaluation/test PWA's, and one (1) set each of Detector ETU and FU PWA's. The contractor shall also deliver one (1) set each of BCDH ETU and FU assemblies, and one (1) set each of FB/BIC ETU and FU assemblies. These hardware deliverables shall be according to Attachment A (Hardware Deliverables List) and per the schedule in section 1.9.0. Any residual, unused hardware shall also be returned to the ATR. All deliverables related to this task shall be made in person to the task ATR or his duly appointed representative. This shall be the method of delivery unless explicitly specified otherwise by the task ATR.

**Contract NAS5-99124**

**Task #: 405**

### 1.8.3 Parts

The contractor shall anticipate delivering twenty five (25) part types due to late design changes.

## 1.9.0 DELIVERABLES SCHEDULE

### 1.9.1 Hardware Assembly

Deliverable to test

| | |
|---|---|
| XA1 Detector Wire Bond Assembly | 2 weeks after ATR approval for board assembly Test |
| Detector ETU Assembly | 8 weeks after ATR approval for board fabrication |
| Detector FU Assembly | 16 weeks after ATR approval for board assembly |
| BCDH ETU Assembly | 8 weeks after ATR approval for board fabrication |
| BCDH FU Assembly | 12 weeks after ATR approval for board assembly |
| FB/BIC ETU Assembly | 8 weeks after ATR approval for board fabrication |
| FB/BIC FU Assembly | 12 weeks after ATR approval for board assembly |
| DM Test Assembly | 8 weeks after ATR approval for board assembly |

**TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL**

NASA/GODDARD SPACE FLIGHT CENTER

# REQUEST FOR TASK PLAN / TASK ORDER

**Contract NAS5-99124**

**Task #: 405**

**ATTACHMENT A**
**(Hardware Deliverables List)**

## SWIFT/BAT Detector Electronics TEST, ETU and FU Hardware Assemblies

| HARDWARE | Sides * | TEST ASS'Y | ETU ASS'Y | UNPOP ETU PWB | FLT ASS'Y | SPARE FLT ASS'Y | Unpopulated | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | PWB | Parts |
| XA1 ASIC PWA | 1 | 3 | 32 | 8 | 256 | 72 | 72 | 36 |
| CZT Detector PWA | 1 | 0 | 32 | 8 | 256 | 72 | 72 | 36 |
| BCDH PWA | 1 | 0 | 2 | 2 | 16 | 10 | 4 | 2 |
| FB/BIC PWA | 1 | 0 | 2 | 2 | 16 | 4 | 4 | 2 |
| Analog PWA | 1 | 0 | 16 | 4 | 128 | 39 | 33 | 18 |
| Mixed-signal PWA | 1 | 0 | 16 | 4 | 128 | 39 | 33 | 18 |
| Digital PWA | 1 | 0 | 16 | 4 | 128 | 39 | 33 | 18 |
| BCDH Box Ass'y | N/A | 0 | 2 | 0 | 16 | 4 | N/A | N/A |
| FB/BIC Box Ass'y | N/A | 0 | 2 | 0 | 16 | 4 | N/A | N/A |
| XA1 Wire Bond Sample Board | 1 | 3 | 0 | 0 | 0 | 0 | N/A | N/A |
| XA1 Probe | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| Dig. Sig. Breakout | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| Samtec Breakout | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| BVR Simulator | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| XA1VR Simulator | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| Detector R/C | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| BCDH Interface | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| XA1 Simulator | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Note: Only one set of Printed Wiring Boards will be fabricated. This set of Printed Wiring boards will be used to assemble the ETU and FU Printed Wiring Assemblies.

* The number 1 in the "sides" column indicates a single PWA with capability for parts mounting on both sides.